I. Description

The 1981-2010 Normals comprise all climate normals using the thirty year period of temperature, degree days, precipitation, snowfall, snow depth, wind, etc. Data is organized into hourly, daily, monthly, seasonal and annual. This document describes the elements and layout of the Monthly Normals which are derived from a composite of climate records from numerous sources that were merged and then subjected to a suite of quality assurance reviews.

II. Format/Element Definitions

(note: the term 'element' is used throughout this documentation and refers to an individual meteorological/climatological measurement or statistical value such as temperature, precipitation (amount), number of days of snowfall >= 3 inches, etc.)

A. Initial section

Each record represents all selected elements available for a given station-day. The initial section of each record is ordered as follows with the following definitions:

STATION (17 characters) is the station identification code. Please see

ftp://ftp.ncdc.noaa.gov/pub/data/normals/1981-2010/station-inventories/

for a complete list of stations and their metadata.

STATION_NAME (max 50 characters) is the name of the station (usually city/airport name). Optional field.

GEOGRAPHIC_LOCATION (31 characters) is the latitude (decimated degrees w/northern hemisphere values > 0, southern hemisphere values < 0), longitude (decimated degrees w/western hemisphere values < 0, eastern hemisphere values > 0) and elevation above mean sea level (thousandths of meters). Optional field.

DATE is the year of the record (4 digits) followed by month (2 digits) and day (2 digits). Note: Day will always be coded as 01 (data values represent a complete month).

B. Elements and flags

Following this initial section of the record, all selected elements and flags are given in the following order:

1st Element |Completeness Flag | 2nd Element | Completeness Flag| 3rd Element…etc., for all elements selected.

Elements are defined in Table 2 below. Please note only elements selected by user will appear in the specific output.

Completeness Flag is defined in **Table 1** below

Flags accompany every Normals value and indicate the completeness of the data record used to compute each value, accounting for methodological differences for different product classes. There are six flag options described generally in **Table 1** below. Due to methodological differences, the flags are applied somewhat differently between the temperature-based normals and the precipitation-based normals. For the precipitation-based and hourly normals, the following flags were assigned independently for each normals value reported based on number of years available for that individual calculation. For temperature-based normals, strong precedence is given to the monthly normals of maximum and minimum temperature or derived from the flags for these two variables.

Table 1 (CompletenessFlag)

C = complete (all 30 years used)
S = standard (no more than 5 years missing and no more than 3 consecutive years missing among the sufficiently complete years)
R = representative (observed record utilized incomplete, but value was scaled or based on filled values to be representative of the full period of record)
P = provisional (at least 10 years used, but not sufficiently complete to be labeled as standard or representative). Also used for parameter values on February 29 as well as for interpolated daily precipitation, snowfall, and snow depth percentiles.
Q = quasi-normal (at least 2 years per month, but not sufficiently complete to be labeled as provisional or any other higher flag code. The associated value was computed using a pseudonormals approach or derived from monthly pseudonormals.
Blank = the data value is reported as a special value such as 9999

Note: Flags Q and R are not applicable for hourly normals. Flags Q and R also aren't applicable to average number of days with different precipitation, snowfall, and snow depth threshold exceedance; precipitation/snowfall/snow probabilities of occurrence; and daily precipitation/snowfall/snow depth percentiles. Further, Q flags are not applicable for standard deviations.

Table 2 (Elements)

mly-cldd-base45	Long-term averages of monthly cooling degree days with base 45F
mly-cldd-base50	Long-term averages of monthly cooling degree days with base 50F
mly-cldd-base55	Long-term averages of monthly cooling degree days with base 55F
mly-cldd-base57	Long-term averages of monthly cooling degree days with base 57F
mly-cldd-base60	Long-term averages of monthly cooling degree days with base 60F

mly-cldd-base70	Long-term averages of monthly cooling degree days with base 70F
mly-cldd-base72	Long-term averages of monthly cooling degree days with base 72F
mly-cldd-normal	Long-term averages of monthly cooling degree days with base 65F
mly-dutr-normal	Long-term averages of monthly diurnal temperature range
mly-dutr-stddev	Long-term standard deviations of monthly diurnal temperature range
mly-htdd-base40	Long-term averages of monthly heating degree days with base 40F
mly-htdd-base45	Long-term averages of monthly heating degree days with base 45F
mly-htdd-base50	Long-term averages of monthly heating degree days with base 50F
mly-htdd-base55	Long-term averages of monthly heating degree days with base 55F
mly-htdd-base57	Long-term averages of monthly heating degree days with base 57F
mly-htdd-base60	Long-term averages of monthly heating degree days with base 60F
mly-htdd-normal	Long-term averages of monthly heating degree days with base 65F
mly-prcp-25pctl	25th percentiles of monthly precipitation totals
mly-prcp-50pctl	50th percentiles of monthly precipitation totals
mly-prcp-75pctl	75th percentiles of monthly precipitation totals
mly-prcp-avgnds-ge001hi	Long-term averages of number of days per month with precipitation >= 0.01 inches
mly-prcp-avgnds-ge010hi	Long-term averages of number of days per month with precipitation >= 0.10 inches
mly-prcp-avgnds-ge050hi	Long-term averages of number of days per month with precipitation >= 0.50 inches
mly-prcp-avgnds-ge100hi	Long-term averages of number of days per month with precipitation >= 1.00 inches
mly-prcp-normal	Long-term averages of monthly precipitation totals
mly-snow-25pctl	25th percentiles of monthly snowfall totals
mly-snow-50pctl	50th percentiles of monthly snowfall totals
mly-snow-75pctl	75th percentiles of monthly snowfall totals
mly-snow-avgnds-ge001ti	Long-term averages of number of days per month with Snowfall >= 0.1 inches
mly-snow-avgnds-ge010ti	Long-term averages of number of days per month with Snowfall >= 1.0 inches
mly-snow-avgnds-ge030ti	Long-term averages of number of days per month with Snowfall >= 3.0 inches
mly-snow-avgnds-ge050ti	Long-term averages of number of days per month with Snowfall >= 5.0 inches
mly-snow-avgnds-ge100ti	Long-term averages of number of days per month with Snowfall >= 10.0 inches
mly-snow-normal	Long-term averages of monthly snowfall totals
mly-snwd-avgnds-ge001wi	Long-term averages of number of days per month with snow depth >= 1 inch
mly-snwd-avgnds-ge001wi	Long-term averages of number of days per month with snow depth >= 3 inches
mly-snwd-avgnds-ge001wi	Long-term averages of number of days per month with snow depth >= 5 inches
mly-snwd-avgnds-	Long-term averages of number of days per month with snow

ge010wi	depth >= 10 inches
mly-tavg-normal	Long-term averages of monthly average temperature
mly-tavg-stddev	Long-term standard deviations of monthly average temperature
mly-tmax-avgnds-grth040	Long-term average number of days per month where tmax is greater than or equal to 40F
mly-tmax-avgnds-grth050	Long-term average number of days per month where tmax is greater than or equal to 50F
mly-tmax-avgnds-grth060	Long-term average number of days per month where tmax is greater than or equal to 60F
mly-tmax-avgnds-grth070	Long-term average number of days per month where tmax is greater than or equal to 70F
mly-tmax-avgnds-grth080	Long-term average number of days per month where tmax is greater than or equal to 80F
mly-tmax-avgnds-grth090	Long-term average number of days per month where tmax is greater than or equal to 90F
mly-tmax-avgnds-grth100	Long-term average number of days per month where tmax is greater than or equal to 100F
mly-tmax-avgnds-lsth032	Long-term average number of days per month where tmax is less than or equal to 32F
mly-tmax-normal	Long-term averages of monthly maximum temperature
mly-tmax-stddev	Long-term standard deviations of monthly maximum temperature
mly-tmin-avgnds-lsth000	Long-term average number of days per month where tmin is less than or equal to 0F
mly-tmin-avgnds-lsth010	Long-term average number of days per month where tmin is less than or equal to 10F
mly-tmin-avgnds-lsth020	Long-term average number of days per month where tmin is less than or equal to 20F
mly-tmin-avgnds-lsth032	Long-term average number of days per month where tmin is less than or equal to 32F
mly-tmin-avgnds-lsth040	Long-term average number of days per month where tmin is less than or equal to 40F
mly-tmin-avgnds-lsth050	Long-term average number of days per month where tmin is less than or equal to 50F
mly-tmin-avgnds-lsth060	Long-term average number of days per month where tmin is less than or equal to 60F
mly-tmin-avgnds-lsth070	Long-term average number of days per month where tmin is less than or equal to 70F
mly-tmin-normal	Long-term averages of monthly minimum temperature
mly-tmin-stddev	Long-term standard deviations of monthly minimum temperature
mtd-prcp-normal	Long-term average month-to-date precipitation totals
mtd-snow-normal	Long-term average month-to-date snowfall totals

III. Additional Information

A. Units

Tenths of degrees Fahrenheit for maximum, minimum, average, dew point, heat index, wind chill, and air temperature normals and standard deviations.
e.g., "703" is 70.3F

Tenths of days for the number of days per month above or below certain threshold, such as days above 90F. e.g., "256" is 25.6 days.

Whole degrees Fahrenheit for heating and cooling degree days.

Hundredths of inches for average monthly/seasonal/annual precipitation, month-to-date/year-to-date precipitation, and percentiles of precipitation.
e.g., "1" is 0.01" and "1486" is 14.86"

Tenths of inches for average monthly/seasonal/annual snowfall, month-to-date/year-to-date snowfall, and percentiles of snowfall.
e.g. "39" is 3.9"

Whole inches for percentiles of snow depth.

Tenths of percent for probabilities of precipitation, snowfall, or snow depth exceeding a specific threshold, as well as cloud and wind percentages.
e.g., "207" is 20.7%

Tenths of degree hours for heating and cooling degree hours. e.g., "152" is 15.2

Tenths of millibars for mean sea level pressure normals.
e.g., "10147" is 1014.7 mb

Tenths of percent for prevailing and secondary wind direction percentages.
e.g., "299" is 29.9%

Prevailing and secondary wind directions can take on 8 values:
1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

Tenths of mph for wind speeds and vector magnitudes. e.g. "73" is 7.3 mph
Whole degrees for mean vector wind directions

B. Special values

9999: missing or insufficient data; value(s) cannot be computed
Note: More special values may be added at a later date.

C. For further information

For more detailed information, view complete documentation at:
http://www1.ncdc.noaa.gov/pub/data/normals/1981-2010/readme.txt.